Liza Rozenberg
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EDUCATION

Harvard University, Cambridge, MA — Sept. 2022 — Present
PhD in Physics
Advisor: Daniel Jafferis

Princeton University, Princeton, NJ — Sept. 2018 — May 2022
AB in Physics
Senior Thesis title: "Probing microstates of near-extremal black holes using n-point correlators in Jackiw-Teitelboim gravity and supersymmetric theories."

RESEARCH EXPERIENCE

Graduate research assistant — Cambridge, MA
Physics Department, Harvard University — Sept. 2022 - Present
Advisor: Prof. Daniel Jafferis

- Analyzed a tensor model based on CFT 3-point function coefficients with potential constructed from a minimum number of CFT constraints.
- Showed this model is dual to 3d gravity by showing a correspondence between Feynman rules in the tensor model and geometric rules for 3-manifolds.
- Studied the Feynman diagrams for this model and showed that all closed connected 3-manifolds with anti-de Sitter (AdS) boundaries contribute to the gravitational path integral.

Undergraduate research assistant — Princeton, NJ
Physics Department, Princeton University — June 2021 - July 2022
Advisor: Prof. Juan Maldacena

- Obtained an exact expression for the quantum gravity 4-point function in JT gravity, analyzed its large time behavior and other limiting behaviors to understand what quantum features remain and why
- Working to understanding boundary propagators for supersymmetric actions, in particular for theories with $\mathcal{N} = 2$ supersymmetry.

Undergraduate research assistant — Princeton, NJ
Physics Department, Princeton University — Feb. - May 2021
Advisor: Prof. Igor Klebanov

- Obtained exact expressions for free energy and 2-point functions in the large N limit for real, complex and Grassmann tensor models under quartic interaction.
- Learned how to use perturbative expansion and Feynman graphs for analysis of these objects.

Undergraduate research assistant — Princeton, NJ
Physics Department, Princeton University — Sept. - Dec. 2020
Advisor: Prof. Herman Verlinde

- Studied the Unruh effect in Rindler space and explored its extension to the Hawking effect in curved space.
- Developed a mathematical analogy between Rindler space and optical cavity to show how the equivalent of Unruh temperature can be detected in a laboratory setting.

PUBLICATIONS

Henry W. Lin, Juan Maldacena, **Liza Rozenberg**, Jieru Shan *Holography for people with no time*, SciPost Phys. 14 (2023) 6, 150, SciPost Phys. 14 (2023) 150
Henry W. Lin, Juan Maldacena, **Liza Rozenberg**, Jieru Shan *Looking at supersymmetric black holes for a very long time*, SciPost Phys. 14 (2023) 5, 128, SciPost Phys. 14 (2023) 128

TEACHING EXPERIENCE

Teaching assistant — Cambridge, MA
Physics Department, Harvard University — Sept. - Dec. 2022
Course: PHYSICS 287A Introduction to String Theory

- Prepared and taught weekly sections, held weekly office hours to help with homework and understanding the material.
- Graded problem sets and final presentations.

Physics Tutor — Princeton, NJ
Physics Department, Princeton University — Sept. 2020 - May 2022

- Helped undergraduate students with understanding the material in advanced physics courses such as Classical Mechanics, Advanced Electromagentism, and Quantum Mechanics.

CONFERENCES AND WORKSHOPS

Attendee, Workshop on Spacetime and Quantum Information, IAS, Princeton, NJ — Dec. 2023
Attendee, Towards the beginning of time: Cosmology at high energies, Princeton Center for Theoretical Science (PCTS), Princeton, NJ — Nov. 2023
Attendee, Workshop on von Neumann algebras in Quantum Field Theory & Gravity, NYU Abu Dhabi Institute in New York, New York, NY — Aug. 2023
Attendee, online, It From Qubit 2023, Perimeter Institute, Waterloo, Canada — July 2023
Attendee, online, Strings 2023, Perimiter Institute, Waterloo, Canada — July 2023
Attendee, It From Qubit: Workshop on Spacetime and Quantum Information, IAS, Princeton, NJ — Dec. 2022

AWARDS AND FELLOWSHIPS

William R. Hearst III Research Fellowship in Physics for graduate students in theoretical physics. *Harvard Kenneth C. Griffin Graduate School of Arts and Sciences, Harvard University, Cambridge, MA* — Sept. 2023 - June 2024

The Manfred Pyka Memorial Physics Prize for excellence in course work and promise in independent research. — July 2020, July 2021
Physics Department, Princeton University

The Bell-Burnell Physics Award to inspire future generations of women scientists. — July 2019, July 2020
Physics Department, Princeton University

SKILLS

- **Relevant Coursework:**
  Physics: Advanced Electromagnetism, Advanced General Relativity, Classical Mechanics, Differential Geometry, Holography and the Infrared Structure of Gravity, Quantum Mechanics I & II, Quantum Field Theory I & II, String Theory, Statistical Mechanics
  Mathematics: Abstract Algebra, Complex Analysis, Differential Geometry, Partial Differential Equations, Probability and Stochastic Systems, Real Analysis, Riemann Surfaces, Topology
- **Programming:** Mathematica, Python, LaTeX.